

## ABSTRACT OF THE DISCLOSURE

A CO sensor and a CO-concentration measurement method which enables accurate measurement of CO concentration irrespective of the hydrogen concentration of a gas under measurement. By applying a first  
5 predetermined voltage between first and second electrodes 7 and 8, hydrogen contained in a gas under measurement which has been introduced into a first measurement space 2 via a first diffusion-controlling section 1 dissociates, decomposes, or reacts with another element to generate protons. The thus-generated protons are transported from the first electrode 7 to the second  
10 electrode 8 via a first proton-conductive layer 5 or protons are transported from the second electrode 8 to the first electrode 7 via the first proton-conductive layer 5 (when the hydrogen concentration of the measurement gas is extremely low), so that the hydrogen concentration within the first measurement space 2 is controlled to a constant level. The gas under  
15 measurement having a controlled hydrogen concentration is introduced into a second measurement space 4 via a second diffusion-controlling section 3, and a second predetermined voltage is applied between third and fourth electrodes 9 and 10. The CO concentration of the gas under measurement is obtained based on current (a limiting proton current) which flows between the third and  
20 fourth electrodes 9 and 10. Alternatively, the CO concentration of the gas under measurement is obtained from electromotive force generated between the third and fourth electrodes 9 and 10.